

## Abstract

To obtain a coherent laser radar device that realizes high reliability and the high output of a transmitted light, the device includes a first optical coupler that branches a laser beam from a laser source into two lights, a local light and a transmitted light, an optical modulator that modulates the transmitted light, a space type optical amplifier that amplifies the modulated transmitted light, a transmitting/receiving optical system that applies the amplified transmitted light toward a target and receives a scattered light from the target, a transmitting/receiving light splitting device that splits the transmitted light and the received light, a second optical coupler that mixes the local light and the split received light together, a photodetector that detects heterodyne of a mixed light, a beat signal amplifier that amplifies a detected signal, a signal processing device that processes an amplified signal, and a display device that displays a processed result. The first and second optical couplers and an optical modulator are structured by polarization maintained type optical elements, and an optical path that extends from the laser source to the space type optical amplifier through the first optical coupler, an optical path that extends from the transmitting/receiving light splitting device to the photodetector through the second optical coupler, and an optical path that extends from the first optical coupler to the second optical coupler are connected by polarization maintained type single mode optical fibers.